

# Proximity Sensors Capacitive Thermoplastic Polyester Housing Type CA, M 30, 2-wire AC/DC

**TRIPLESIELD™**

**CARLO GAVAZZI**



- Featuring TRIPLESIELD™ Sensor Protection
- Temperature stability
- Humidity compensation circuit
- Adjustable sensing distance 2-16 mm or 2-25 mm
- Rated operational voltage: 20-250 VAC/DC
- Output: Power MOSFET
- Make and break switching function, selectable
- LED indication
- High noise immunity
- Flush and non-flush types
- Cable and plug versions available

## Product Description

Capacitive proximity switches with either sensing distance 16 mm flush mounted or 25 mm sensing distance non-flush mounted. 2-wire AC/DC output with a switch

for choosing NO and NC switching. Grey M 30 polyester housing with 2 m PVC cable or plug. Ideal for use in level and plastic machinery applications.

## Ordering Key

**CA30CLN25CPM6**

Type: Cap. proximity switch  
Housing style  
Housing size  
Housing material  
Housing length  
Detection principle  
Sensing distance  
Output type  
Output configuration  
Connection

## Type Selection

| Housing diameter  | Rated operating dist. (S <sub>n</sub> ) <sup>1)</sup> | Mounting         | Ordering no.<br>Power MOSFET, cable<br>Make & break switching | Ordering no.<br>Power MOSFET, plug<br>Make & break switching |
|-------------------|-------------------------------------------------------|------------------|---------------------------------------------------------------|--------------------------------------------------------------|
| M30 <sup>2)</sup> | 16 mm                                                 | Flush (built-in) | CA30CLF16CP                                                   | CA30CLF16CPM6                                                |
| M30               | 25 mm                                                 | Non-flush        | CA30CLN25CP                                                   | CA30CLN25CPM6                                                |

<sup>1)</sup> Object: Grounded steel plate

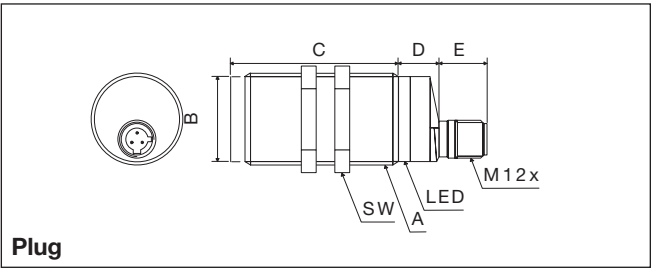
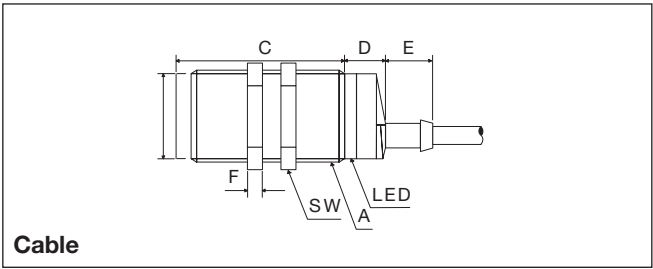
<sup>2)</sup> No humidity compensation

## Specifications

|                                                                                  |                                                                                                                                                                                  |                                      |                                                                                                  |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Rated operating dist. (S<sub>n</sub>)</b><br>CA30CL.16CP...<br>CA30CL.25CP... | 2 to 16 mm (preset at 16 mm)<br>2 to 25 mm (preset at 25 mm)                                                                                                                     | <b>Protection</b>                    | Transients, reverse polarity                                                                     |
| <b>Sensitivity</b>                                                               | Adj. multiturn pot.meter                                                                                                                                                         | <b>Power ON delay</b>                | ≤ 200 ms                                                                                         |
| <b>Effective operating dist. (S<sub>r</sub>)</b>                                 | 0.9 x S <sub>n</sub> ≤ S <sub>r</sub> ≤ 1.1 x S <sub>n</sub>                                                                                                                     | <b>Freq. of operating cycles (f)</b> | 10 Hz                                                                                            |
| <b>Usable operating dist. (S<sub>u</sub>)</b>                                    | 0.8 x S <sub>r</sub> ≤ S <sub>u</sub> < 1.2 x S <sub>r</sub>                                                                                                                     | <b>Indication for output ON</b>      | LED, yellow                                                                                      |
| <b>Repeat accuracy (R)</b>                                                       | ≤ 5%                                                                                                                                                                             | <b>Environment</b>                   |                                                                                                  |
| <b>Hysteresis (H)</b>                                                            | 4 to 20% of sensing distance                                                                                                                                                     | Degree of protection                 | IP 67 (Nema 1, 3, 4, 6, 13)                                                                      |
| <b>Rated operational volt. (U<sub>B</sub>)</b>                                   | 20 to 250 VAC/DC (ripple included)                                                                                                                                               | <b>Temperature (T<sub>A</sub>)</b>   |                                                                                                  |
| <b>Ripple</b>                                                                    | ≤ 10%                                                                                                                                                                            | Operating temperature                | -25° to +80°C (-13° to +176°F)                                                                   |
| <b>Rated operational current (I<sub>e</sub>)</b><br>Continuous                   | ≤ 250 mA DC @ T <sub>A</sub> ≤ 50°C<br>≤ 200 mA DC @ T <sub>A</sub> ≤ 80°C<br>≤ 350 mA AC @ T <sub>A</sub> ≤ 50°C<br>≤ 250 mA AC @ T <sub>A</sub> ≤ 80°C<br>< 2.5 A (max. 20 ms) | Storage temperature                  | -40° to +85°C (-40° to +185°F)                                                                   |
| Short-time                                                                       |                                                                                                                                                                                  | <b>Housing material</b>              |                                                                                                  |
| <b>Min. load current</b>                                                         | 10 mA                                                                                                                                                                            | Body                                 | Grey, thermoplastic polyester                                                                    |
| <b>OFF-state current (I<sub>o</sub>)</b>                                         | < 1.9 mA (@ 20-250 VAC)<br>< 1.7 mA (@ 20-250 VDC)                                                                                                                               | Cable end                            | Polyester                                                                                        |
| <b>Voltage drop (U<sub>d</sub>)</b>                                              | ≤ 5.5 VAC/DC @ I <sub>e</sub> max                                                                                                                                                | Nuts                                 | Black reinforced nylon                                                                           |
|                                                                                  |                                                                                                                                                                                  | <b>Connection</b>                    |                                                                                                  |
|                                                                                  |                                                                                                                                                                                  | Cable                                | Grey, 2 m, 2 x 0.5 mm <sup>2</sup><br>Oil proof, PVC<br>M12 x 1 double keyed<br>CON.6A-.. series |
|                                                                                  |                                                                                                                                                                                  | Plug (-6)                            |                                                                                                  |
|                                                                                  |                                                                                                                                                                                  | Cable for plug (-6)                  |                                                                                                  |
|                                                                                  |                                                                                                                                                                                  | <b>Weight (incl. nuts)</b>           | CA30CL.16CP...: 140 g<br>CA30CL.25CP...: 150 g                                                   |
|                                                                                  |                                                                                                                                                                                  | <b>Approvals</b>                     | UL, CSA                                                                                          |
|                                                                                  |                                                                                                                                                                                  | <b>CE-marking</b>                    | Yes                                                                                              |



Dimensions



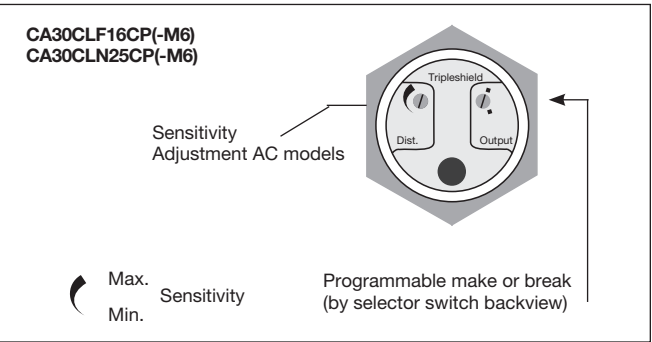
| Type             | A               | B<br>Ø mm | C<br>mm | D<br>mm | E<br>mm | F<br>mm | SW<br>mm |
|------------------|-----------------|-----------|---------|---------|---------|---------|----------|
| CA30CLF16CP(-M6) | M 30 x 1.5 x 50 | 28        | 50      | 13.6    | 15.4    | 5       | 36       |
| CA30CLN25CP(-M6) | M 30 x 1.5 x 50 | 28        | 62      | 13.6    | 15.4    | 5       | 36       |

Adjustment Guide

The environments in which capacitive sensors are installed can often be unstable regarding temperature, humidity, object distance and industrial (noise) interference. Because of this, Carlo Gavazzi offers as standard features in all TRIPLESIELD™ capacitive sensors a user-friendly sensitivity adjustment instead of having a fixed sensing range, extended sensing range to

accommodate mechanically demanding areas, temperature stability to ensure minimum need for adjusting sensitivity if temperature varies and high immunity to electromagnetic interference (EMI).

**Note:**  
The sensors are factory set (default) to maximum rated sensing range.



Installation Hints

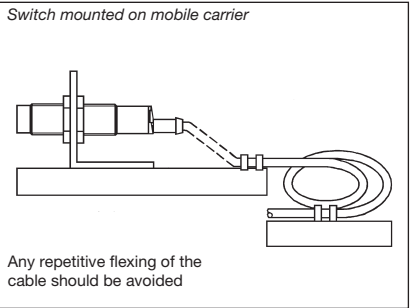
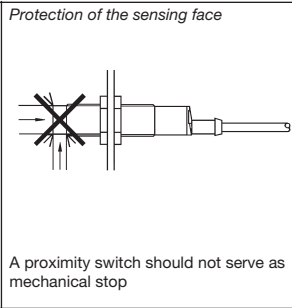
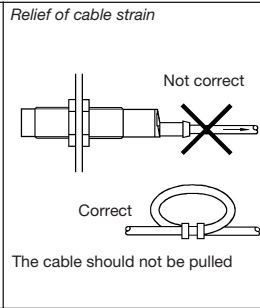
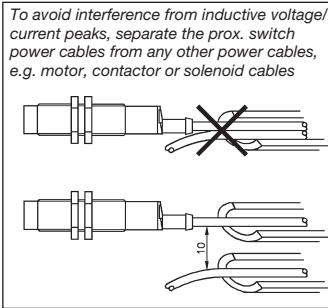
Capacitive sensors have the unique ability to detect almost all materials, either in liquid or solid form. Capacitive sensors can detect metallic as well as non-metallic objects, however, their traditional use is for non-metallic materials such as:

- **Plastic Industry**  
Resins, regrinds or mould-

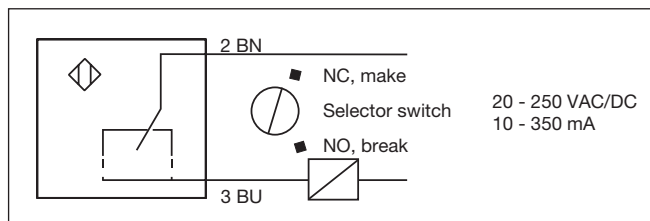
- ed products.
- **Chemical Industry**  
Cleansers, fertilisers, liquid soaps, corrosives and petrochemicals.
- **Wood Industry**  
Saw dust, paper products, door and window frames.
- **Ceramic & Glass Industry**  
Raw material, clay or

- finished products, bottles.
  - **Packaging Industry**  
Package inspection for level or contents, dry goods, fruits and vegetables, dairy products.
- Materials are detected due to their dielectric constant. The bigger the size of an object, the higher the density of material, the better or eas-

ier it is to detect the object. Nominal sensing distance for a capacitive sensor is referenced to a grounded metal plate (ST37). For additional information regarding dielectric ratings of materials please refer to Technical Information.



## Wiring Diagram



## Delivery Contents

- Capacitive switch: CA30..CL...CP (-M6)
- Screw driver
- 2 nuts
- **Packaging:** Cardboard box
- Installation & Adjustment Guide (MAN CAP ENG/GER)

## Accessories

- Plugs CON.6A-.. series.

For further information please refer to "Accessories".